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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,268	08/07/2001	Ralf Wolleschensky	GK-ZEI-3101/500343.20097	4892

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EXAMINER

STOCK JR, GORDON J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,268

Applicant(s)

WOLLESCHENSKY ET AL.

Examiner

Gordon J Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 10, 23, 26, 27, 37, 47, 56, 68, 71, 72 and 82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 27, 56 and 72 is/are allowed.
- 6) ☒ Claim(s) 1, 26, 37, 47 and 71 is/are rejected.
- 7) ☒ Claim(s) 23, 68 and 82 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 37** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for **claim 37**, it is unclear as to how the X-Y scanner is used in the method of claim 1; thereby, it appears that there is an omission of a critical step. Examiner suggests that the claim read: "wherein the scan unit comprises an x-y scanner."

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. **Claims 26 and 71** are rejected under 35 U.S.C. 102(a) as being anticipated by **Gregory (6,240,219)**.

As for **claims 26 and 71**, Gregory in an apparatus and method for providing optical sensors with super resolution discloses the following: detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from a specimen by a spatially resolving detector wherein radiation from a specimen is imaged on detector whereas, the signal that is backscattered, reflected, fluoresced, or transmitted is suggestive of the examples of sensors

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mentioned (col. 1, lines 15-20); shifting position of radiation in a spatially resolved manner relative to the detector (col. 2, lines 33-65; col. 4, lines 30-40; col. 5, lines 45-65); determining intermediate values by an algorithm from signals to increase resolution (algorithms and processing on cols. 7-10); wherein the signals of the detection channels are generated by at least one integrator circuit (col. 6, lines 30-40).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 26 and 71** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Garner et al. (6,337,472)** in view of **Cabib et al. (5,936,731)**.

As to **claims 26 and 71** Garner in a light imaging microscope having spatially resolved images discloses detecting a signal that is backscattered, reflected, and/or fluoresced by a spatially resolving detector wherein the radiation is imaged on the detector; shifting the position of the radiation which is measured in a spatially resolved manner relative to the detector suggested through scanning (col. 5, lines 60-65; col. 6, lines 1-25). As for determining intermediate values by an algorithm from the signals for purposes of increasing spatial resolution, Garner does not explicitly state this, but mentions improvement of spatial resolution (col. 6, lines 20-25) and that a image cube is produced (col. 11, lines 1-15) and states that resolution can be controlled (col. 19, lines 58-68) and that standard algorithms are performed

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(col. 5, lines 60-61). However, Cabib in a method for simultaneous detection of multiple fluorophores teaches the signal to noise is increased and thus resolution is improved effected by production of a spectral cube of data using a mathematical algorithm (suggested by col. 14, lines 10-20; algorithms of cols. 18, 20, and 21). It would be obvious to one of ordinary skill in the art at the time the invention was made that spatial resolution would be improved for an image cube is produced that is constructed from mathematical algorithms. Also Garner discloses a displacement of a mirror for scanning (col. 6, lines 30-45). In addition, Garner discloses an integrator circuit (col. 15, lines 20-30).

7. **Claims 1 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hadbawnik (EPO 0 320 530) cited by applicant.**

As for **claims 1 and 47**, Hadbawnik discloses a spectrometer comprising the following: a detector for detecting a signal transmitted/absorbed from a specimen that is spatially resolving for there are shifts spatially to enhance resolution (Fig. 1: 15, 16, 11); means for imaging and means for shifting a position of radiation on detector (Fig. 1: 1, 3, 8, and 10); processing means for obtaining a spatially resolved spectrum (Fig. 1: 20, 21, 22); wherein the shifting means such as the dispersive element may be stationary and a scan unit, a glass plate with driving means, performs the swiveling (Fig. 1: 8, 9, 14, 10; col. 9, lines 40-55). As for intermediate values for the shifts, Hadbawnik discloses the spatially resolved spectrum with 26 times more points and therefore intermediate values, Fig. 3b, as compared to Fig. 3a (col. 8, lines 30-57; col. 9, lines 2-40). As for an algorithm, Hadbawnik does not explicitly state this, but he does teach that the spectrum produced has 26 points rather than 2 in the non-shifted spectrum (col. 9, lines 25-35). It would be obvious to one of ordinary skill in the art at the time the invention was made that an

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algorithm was used for the spectrum collected comprised 26 separate steps of collecting data points.

Allowable Subject Matter

8. **Claims 10, 27, 56, and 72** are allowed.
9. **Claims 23, 68 and 82** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. **Claim 37** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
11. As to **claim 10**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an optical detection method a dispersive element is swiveled for increasing the spectral resolution and further an additional movement of the detector is carried out, in combination with the rest of the limitations of **claim 10**.

As to **claim 23**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an optical method the particular comparison of the measured signal with a reference signal, in combination with the rest of the limitations of **claim 23**.

As to **claim 27**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an optical detection method the signals are generated by photon counting and subsequent digital-to-analog conversion is performed, in combination with the rest of the limitations of **claim 27**.

As to **claim 37**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an optical detection method having the scan unit comprise an x-y scanner, in combination with the rest of the limitations of **claim 37**.

As to **claim 56**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement a dispersive element is swiveled for increasing the spectral resolution and an additional movement of the detector is carried out, in combination with the rest of the limitations of **claim 56**.

As to **claim 68**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement the particular comparison of the measured signal with a reference signal, in combination with the rest of the limitations of **claim 68**.

As to **claim 72**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement signals are generated by photon counting and subsequent digital to analog conversion is performed, in combination with the rest of the limitations of **claim 72**.

As to **claim 82**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement an x-y scanner in the illumination source, in combination with the rest of the limitations of **claim 82**.

Response to Arguments

12. Applicant's remarks with respect to the claim rejections (see Remarks filed June 7, 2004) have been considered but are moot in view of the new ground(s) of rejection. The arguments with respect to the objections to the drawings and specification were found persuasive. Subsequently, due to the amendment to the drawings and specification and the persuasiveness of

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the arguments, all objections have been overcome. As for the indication of allowable subject matter in the previous action, Examiner apologizes for the inconvenience but upon further search and further consideration of the references claims 1, 26, 47, and 71 have been rejected (see above).

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gs

September 18, 2004

Zandra V. Smith
Primary Examiner
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